

Application No.: 09/944,103

Docket No.: 21994-00028-US

REMARKS

The Office Action and prior art relied upon have been carefully considered. Applicant notes the rejection of prior claims 11 and 12 on the basis of 35 U.S.C. § 103(a) as being unpatentable over Katagiri (U.S. Pat. No. 4,862,305) in view of Komiyama (U.S. Pat. No. 5,121,275).

By virtue of the present amendment, claim 12 has been cancelled and sole remaining claim 11 has been amended to clarify the patentable aspects of the invention over the cited prior art. No new matter or new issue has been introduced so that entry of this amendment is proper.

A major feature of the present invention is a protrusion 21Ba. As shown in Fig. 13(b), the protrusion 21Ba formed so as to stick out from the outer left side 21B1 of the upper half 21 (page 17, lines 12-14) above the left hole 28b for a light path (page 17, lines 26-27).

Further, surfaces 10C1 and 10C2, which are formed on the under surface of the protrusion 21Ba and are oriented perpendicularly to the outer left side 21B1 and confront the lower half 22. The surfaces 10C1 and 10C2 are roughened so as to emit and scatter the detection light beam that is irradiated by the light emitting section D1 and passes through the upper half 21 (page 17, lines 10-14).

The roughened surfaces relate to that the upper half 21 of the present invention is made of a material having high transparency (page 17, lines 8-9), and as discussed in the specification on page 14, line 21 to page 15, line 1, scattered light of the detection light beam irradiated from the light emitting section D1 passes through the upper half.

The scattered light passing through the upper half 21 is emitted from the protrusion 21Ba to the outside of the upper half 21 (refer to Fig. 22).

In other words, the scattered light is irradiated from the surfaces 10C1 and 10C2, which are formed on the underside of the protrusion 21Ba perpendicularly to the outer left side 21B1 and which confront the lower half 22.

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In order to reduce luminous energy of scattered light passing along a light path through the upper half 21, above the left hole 28b, the surfaces 10C1 and 10C2 provided adjacent to the left hole 28b are roughened (Fig. 13b and page 18, lines 5-23).

In the explanation given above, only the protrusion 21Ba formed on the outer left side 21B1 of the upper half 21 is discussed. However, it should be understood that another protrusion 21Aa is formed on an outer right side 21A1 of the upper half 21 symmetrical to the protrusion 21Ba, and that the under surface of the other protrusion 21Aa is formed with a roughened surface 10d (page 17, line 25 to page 18, line 4).

With respect to the cited prior art, Katagiri et al. (U.S. Pat. No. 4,862,305) teaches that the projection 27 shown in Figs. 2 and 3 prevents the reflected light from reaching the light reception element 9 (col. 4, lines 37-39). However, light never enters into, passes through, or is emitted from the projection 27 at all because the projection 27 is provided for preventing light from being transmitted. Thus, the purpose of projection 27 of Katagiri et al. is completely different from the protrusion 21Ba of the present invention.

In the case of Komiyama (U.S. Pat. No. 5,121,275), the surface of prism 117 shown in Fig. 5 is roughened (col. 4, lines 60-66). A detection beam is injected into one of the entrance/exit surfaces 117d of the prism 117 and is reflected from the first and second reflecting surfaces 117b, 117c, and projected out from the other entrance/exit surface 117d (col. 5, lines 14-22). However, as it is apparent from Fig. 5 and the description in col. 4, lines 60-66, the entrance/exit surface 117d of the prism 117, for injecting and projecting the detection beam, is not roughened.

Thus, the roughened surfaces 10C1 and 10C2 of the protrusion 21Ba of the present invention are structurally completely different from the entrance/exit surface 117d of the prism 117 of Komiyama.

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Therefore, a combination of the references fails to meet the claimed invention. Clearly, the Examiner would have to rely on impermissible hindsight to modify the references in a manner neither suggested nor taught by the references themselves. Remaining claim 11 is therefore allowable.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 22-0185, under Order No. 21994-00028-US from which the undersigned is authorized to draw.

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Respectfully submitted

By 

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